National Biological Information Infrastructure

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NBII and the National Spatial Data Infrastructure: Partners in Kind

Introduction

The National Biological Information Infrastructure (NBII) and the National Spatial Data Infrastructure (NSDI) support and complement each other in several ways. Each program supports a National Information Infrastructure (NII) objective to increase access, sharing, and application of data among a broad set of public and private cooperators and partners. The NSDI's focus is on **geospatial** data, while the NBII's focus is on **biological** information, with biological data being a key component. To the extent that some types of geospatial data relate to biological themes—and some types of biological data are spatially oriented, such as data on the geographic distribution of biological species or ecosystems—the linkage between the NBII and the NSDI becomes explicit. But the two efforts also support and complement each other in other less obvious ways; for instance, in the use of common standards and tools that help support the goals of increased access, sharing, and application of data…and in a shared commitment to involving many partner agencies and organizations in building and using these information infrastructures.

Goals of the NBII and the NSDI

The goal of the NBII is to establish a distributed "federation" of biological information sources, together with the necessary tools to help users find the biological information they need, combine information from different sources, and apply information to natural resources management decisions. The types of biological information addressed within the framework of the NBII cover a wide range that includes information at the genetic, cellular, microbiological, anatomical, physiological, organismal, and ecological levels; reference information on bio-systematics and nomenclature (i.e., species names and classifications); results of laboratory-based research on the causes of wildlife diseases; information on specimens in natural history museums; directory-type information on biological experts and specialists; and bibliographies, publications, and reports. The common theme among these disparate information types is the emphasis on biological resources and systems.

The NSDI is an umbrella of policies, standards, and procedures under which organizations and technologies interact to foster more efficient use, management, and production of geospatial data. The types of geospatial data addressed within the framework of the NSDI include such different themes or topics as: topography and hydrography; information on boundaries and roads; cultural and demographic information, such as census information; natural resources information, such as vegetation, animal populations, soils, or geology; information on historic or archeological resources and sites; and information on facilities and structures. Here the common theme is the emphasis on the geospatial; i.e., explicitly relating the thematic information to specified locations on the surface of the Earth.

Links Between the NBII and the NSDI

Whenever biological data included in the NBII federation have an explicit geospatial component—such as data showing geospatial distributions of one or more

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different species within the United States, or data used to produce vegetation maps for National Park units—all relevant NSDI standards and policies are followed. These include meeting the policy requirements of Executive Order 12906 for Federal agencies to document and share access to geospatial data; complying with the Federal Geographic Data Committee's (FGDC) Content Standards for Geospatial Metadata in developing standard metadata descriptions of data sets; and complying with the FGDC Spatial Data Transfer Standard in preparing and formatting geospatial data for transfer.

At the same time, the NBII biological metadata standard provides a special biologically oriented "profile" of the FGDC geospatial metadata standard that can be used in two ways: (1) In describing biological data with a geospatial component, the NBII metadata standard lets you document additional aspects of a data set (such as the biological systematics and nomenclatural references) that are significant and useful for discovering, reviewing, and comparing different biological data sources; (2) For describing biological data and information that are not explicitly geospatial in nature (such as the results of *in vitro* research, or directories of biological science experts), the NBII metadata standard allows you to document these "nonspatial" data sources in a form that complies with the FGDC geospatial metadata standard.

The NBII "MetaMaker" metadata software tool can be used to collect, maintain, and output metadata in accordance with the standards and procedures of ***both*** the NBII and the NSDI. MetaMaker includes all the metadata elements of both the "base" FGDC geospatial metadata standard, as well as all the additional elements of the NBII biological "profile" of the metadata standard. Thus, MetaMaker is regularly used to document data in all three of the major categories covered by the NSDI and the NBII: non-biological geospatial data (such as geological data); biological data with a geospatial reference (such as animal species distribution maps); and biological data that are not explicitly geospatial (such as lists of species' scientific and common names and the associated taxonomies).

The NBII program contributes funds to the NSDI Competitive Cooperative Agreements Program (CCAP), which awards cooperative agreements to non-Federal institutions to help broaden the understanding and implementation of the NSDI. NBII program support to the NSDI CCAP program is used specifically to help support projects that increase access to biological geospatial data, and thus continue to strengthen the links between the NSDI and the NBII.